

SECTION 3 (11.00 - 11.45): Product Planning and Platforms

Choosing the right projects

DTU Management Engineering
Department of Management Engineering



3rd Section - Learning objectives

To be able to:

1. **Define** the different types of new product developments in relative terms.
2. **List** the 5 stages of the product planning process.
3. **Explain** what is meant by a product platform.
4. **Apply** portfolio management techniques.

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Types of New Product Development

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Types of New Product Development

Enhancement product improvement:

- Modify features to keep product competence- familiar market
- Slight change to address any flaws

EXAMPLE: Software updates

Derivatives of existing product platforms:

- Extend existing products into a new market
- Use of new modules onto an existing platform

EXAMPLE: Creative New Apps for the Iphone

New product platform:

- Major development (but familiar markets and product categories)
- Create new family

EXAMPLE: Iphone3 to Iphone4

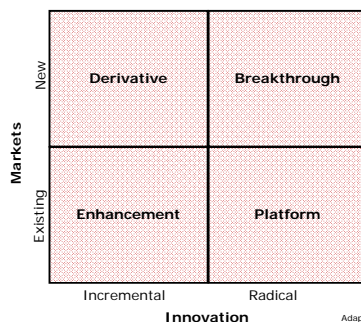
Breakthrough products:

- Radically different product or technology – new market
- More risk

EXAMPLE: Virgin Galactic Space Programme

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Types of New Product Development



Adapted from Bettina Von Stamm
(Managing Innovation, Design and Creativity)

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Exercise (in pairs)

Try to come up with an analogous example for drug developments for each of the following product types:

Enhancement product improvement

Derivatives of existing product platforms

New product platform

Enhancements products

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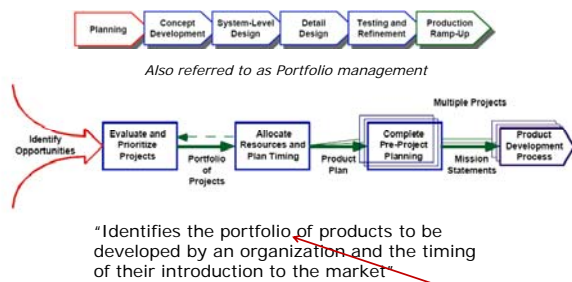
How is a product development project initiated?

Product Development Process



The product planning phase precedes the product development process.

Product Planning Process



What is a portfolio ?

Identify Opportunities

• Where do ideas for new projects arise?

- Marketing and sales personnel
- R&D
- Product development teams
- Manufacturing / Operations
- Customers
- Third parties

• Each promising opportunity written in a short statement and stored in a database

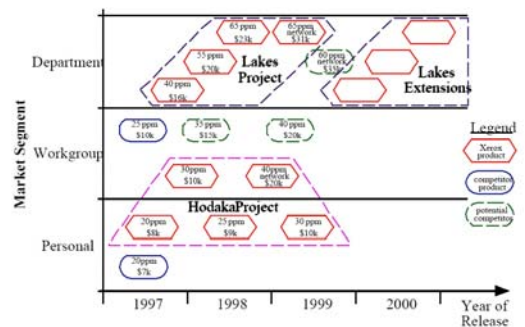


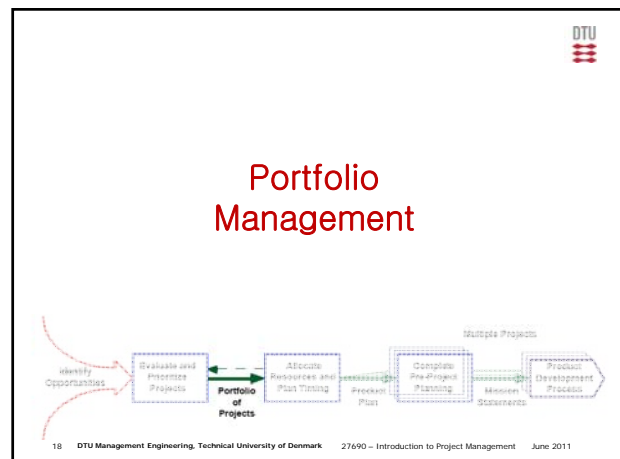
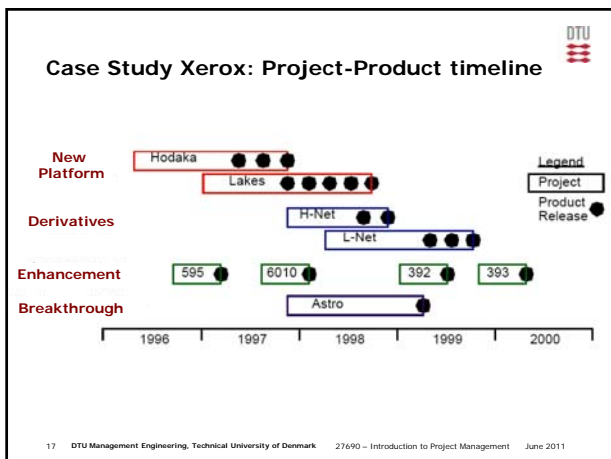
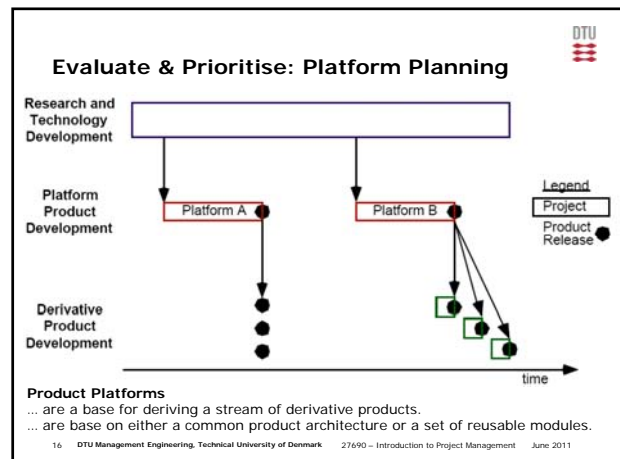
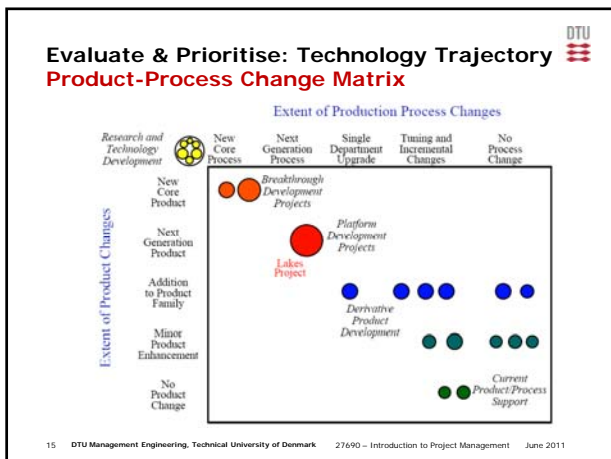
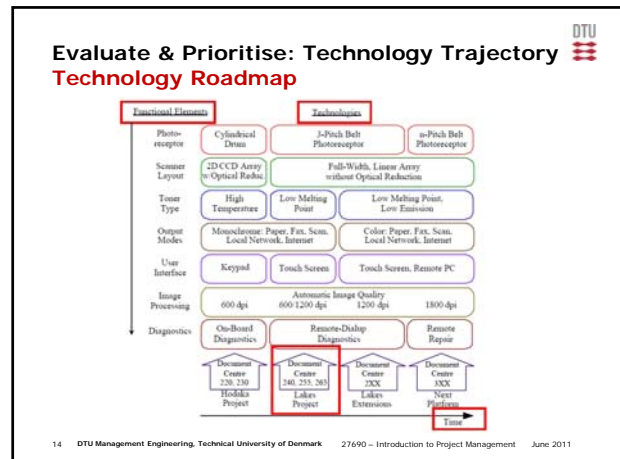
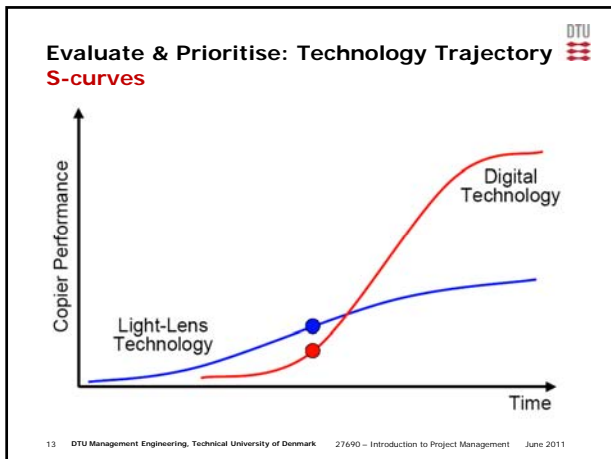
Evaluate and Prioritise

- Market segmentation: consider customers and competitors
- Technological trajectories: when to adopt a new technology
- Product platform planning



Evaluate & Prioritise: Competitive Strategy





Why do we need portfolio management?

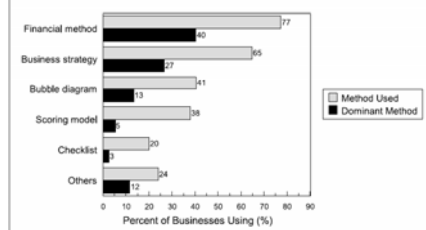
- Maximise return & R&D productivity (for financial goals)
- Maintain competitive position
- Allocate resources efficiently
- Link project selection to business strategy
- Focus not too many projects, but instead resourcing 'great' projects
- Achieve balance- long term projects v short term, high risk v low risk
- Communicate priorities within organisation
- Better objectivity in project selection

— Cooper, Eggett, Kleinschmidt

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Portfolio Management: Popularity of methods used

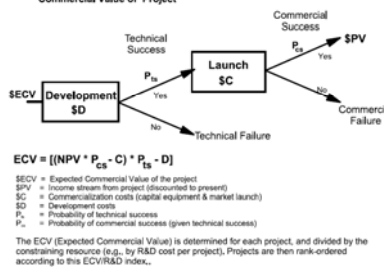
Figure 5: Popularity of Portfolio Methods Employed



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Financial Method

Figure 6: Rank Ordered Against Financial Criterion – Determination of Expected Commercial Value of Project



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Business Strategy Method

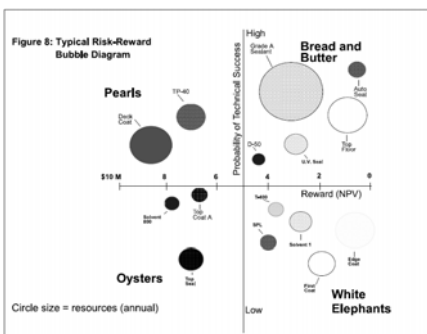
Figure 7: Strategic Buckets Method

New Products: Project Line A: 1.0 Target Spend: \$1.0M	New Products: Project Line B: 2.0 Target Spend: \$1.0M	Maintenance of Business: Project Line A & B: Target Spend: \$1.0M	Cost Reductions: All Projects: Target Spend: \$1.0M
Project A: 4.1	Project B: 2.2	Project C: 1.2	Project I: 1.8
Project D: 2.1	Project E: 4.5	Project G: 0.8	Project M: 2.4
Project F: 1.7	Project K: 2.3	Project H: 0.7	Project N: 0.7
Project J: 0.5	Project T: 3.7	Project L: 1.5	Project P: 1.4
Project X: 1.7	Gap = 5.8	Project Q: 4.8	Project S: 1.6
Project Y: 2.9		Project R: 1.5	Project U: 1.0
Project Z: 4.5		Project V: 2.5	Project AA: 1.2
Project BB: 2.6		Project W: 2.1	

Strategic Buckets method: Based on the business's goals, vision and strategy, senior management makes forced splits of money across the organization (for example, by product line, by market, by project type, and so on). From these splits are created 6-10 buckets (only four are shown above). Projects are then sorted into buckets, and then rank-ordered within buckets until the spending limit is reached for each bucket. Ranking can be via a financial metric, the ECV, or a scoring model. Using the Strategic Buckets approach, R&D spending is forced to mirror the business's strategy. See also [4,5].

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Bubble Diagrams / Portfolio Maps



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Scoring Model

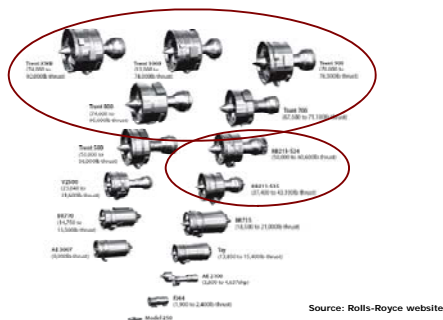
Figure 9: Scoring Model (a major chemical company)

- Reward:**
 - Absolute contribution to profitability (5 year cash flow: cumulative cash flows less all cash costs, before interest & taxes).
 - Technological payback: the number of years for the cumulative cash flow to equal all cash costs expended prior to the start-up date.
 - Time to commercial start-up (years).
- Business Strategy Fit:**
 - Comprehension how well the program fits with the strategy (stated or implied) for the product line, business and/or company.
 - Impact the financial and strategic impact of the program on the product line, business and/or company (scored from "minimal" to "critical").
- Strategic Leverage:**
 - Regulatory protection (scored from "heavily copied" to "well protected via patents, trade secrets, etc.).
 - Platform for growth (scored from "one of a kind" to "spare parts or new technical & commercial fields").
 - Duration of the life of the product in the marketplace (years).
 - Platform for growth (scored from "minimal" to "critical").
- Probability of Commercial Success:**
 - Existence of a market need.
 - Market maturity (scored from "nascent" to "rapid growth").
 - Competitive intensity: how tough or intense the competition is.
 - Existence of commercial applications development skills (scored from "new" to "already in place").
 - Commercial assumptions (from "low probability" to "highly predictable").
 - Regulatory/political impact (scored from "negative" to "positive").
- Probability of Technical Success:**
 - Technical gap (scored from "large gap" to "incremental improvement").
 - Program complexity (scored from "many hurdles" to "straightforward").
 - Existence of technological skill base (scored from "new to us" to "widely practiced in company").
 - Availability of people & facilities (scored from "must hire/build" to "immediately available").

These 19 rating questions are each scored 1-10. Each question is anchored (what a 10 is, what a 1 is). Questions are added in a weighted fashion to yield the five Factors. The five Factors are added, also in a weighted fashion, to yield the Program Attractiveness Score, which is used to make Go/NoGo and prioritization decisions. See also [2,4].

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Source: Rolls-Royce website

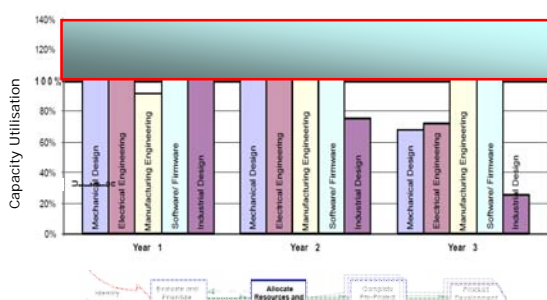
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- Results are strategically aligned, have a high value portfolio, the right number of projects and result in good time-to-market

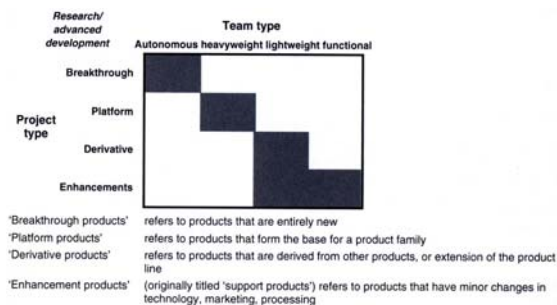
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Reproduced from (Wheelwright and Clark 1995)

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- What product development projects will be undertaken?
- What mix of projects? - New products, platform or derivatives
- How do the projects relate to a product portfolio?
- How to time and sequence product development projects?

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- Market segments
(new diseases, illnesses, customer needs)
- New technologies
(new enzymes, mechanisms)
- Manufacture and service goals / constraints
(new production methods, administering techniques, supply chain, legalities)
- Financial targets
(competition, profit margins)
- Budget and time frame
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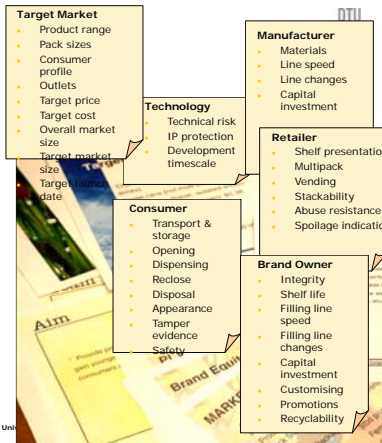
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PRODUCT PLAN: Brief

- Objective
- Team & plan
- Brainstorm brief
 - Target Market
 - Musts
 - Desirables
- **Mission Statement**



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Reflect on the Results and Process

Assessing the quality of the process and the results:

Firms strategy and opportunities:

- Does product plan support competitive strategy?
- Does product plan address current opportunities?

Resources:

- Are sufficient resources allocated?

Mission statement:

- Are challenges of the mission statement acceptable to the core team?
- Are assumptions in mission statement needed (or over constrained)?

Improvements:

- How can product planning process be improved?

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Summary

Five-step product planning process:

- Identify opportunities
- Evaluate and prioritise projects
- Allocate resources and plan timing
- Complete pre-project planning
- Reflect on the results and the process

Meeting the learning objectives?

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Exercises (in pairs)

1) For either a old project or your forthcoming project:

- A. Draw out a market segmentation map (Slide 12), considering the axis in which to position your product.

OR:

- B. Draw a technology trajectory chart (Slide 14), considering future and current technologies (drugs?).

Hint: Reference slide 29 for relationships

- 2) Write 3 questions that you will ask of your project company in order to place your project within their bubble diagram (slide 23).

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